```
In [3]: | import pandas as pd
    df = pd.read_csv('C:\\Users\\jagad\\Downloads\\01.Data Cleaning and Preprocessing.csv')
    print("First few rows of the DataFrame:")
    print(df.head())
```

```
First few rows of the DataFrame:
 Observation Y-Kappa ChipRate BF-CMratio BlowFlow ChipLevel4
                                    121.717 1177.607
0
    31-00:00
                23.10
                         16.520
                                                           169.805
                                     79.022 1328.360
1
    31-01:00
                27.60
                         16.810
                                                           341.327
                                     79.562 1329.407
2
    31-02:00
                23.19
                         16.709
                                                           239.161
                                     81.011 1334.877
3
    31-03:00
                23.60
                         16.478
                                                           213.527
4
    31-04:00
                22.90
                         15.618
                                     93.244 1334.168
                                                           243.131
                                                      ... SteamFlow-4
  T-upperExt-2
                 T-lowerExt-2
                                 UCZAA WhiteFlow-4
                                             599.253 ...
0
                                                                 67.122
        358.282
                        329.545 1.443
                        329.067 1.549
        351.050
                                                                 60.012
1
                                             537.201 ...
        350.022
                                             549.611 ...
                                                                 61.304
2
                        329.260 1.600
3
        350.938
                        331.142 1.604
                                             623.362 ...
                                                                 68.496
4
        351.640
                        332.709
                                             638.672 ...
                                                                 70.022
                                   NaN
                                 ChipMass-4
  Lower-HeatT-3 Upper-HeatT-3
                                              WeakLiquorF
                                                            BlackFlow-2
0
        329.432
                         303.099
                                     175.964
                                                  1127.197
                                                                1319.039
1
         330.823
                         304.879
                                     163.202
                                                   665.975
                                                                1297.317
2
        329.140
                         303.383
                                     164.013
                                                   677.534
                                                                1327.072
3
        328.875
                         302.254
                                     181.487
                                                   767.853
                                                                1324.461
                        300.954
                                     183.929
                                                                1343.424
        328.352
                                                   888.448
  WeakWashF
              SteamHeatF-3 T-Top-Chips-4
                                             SulphidityL-4
                     54.612
0
     257.325
                                    252.077
                                                        NaN
1
     241.182
                     46.603
                                    251.406
                                                      29.11
2
     237.272
                     51.795
                                    251.335
                                                        NaN
3
     239,478
                     54.846
                                    250.312
                                                      29.02
4
     215.372
                     54.186
                                    249.916
                                                      29.01
```

[5 rows x 23 columns]

```
Filtered DataFrame:
  Observation Y-Kappa ChipRate
                                  BF-CMratio BlowFlow
                                                        ChipLevel4
     31-00:00
                 23.10
                                              1177.607
                          16.520
                                     121.717
                                                             169.805
1
     31-01:00
                 27.60
                          16.810
                                      79.022 1328.360
                                                             341.327
2
                 23.19
                          16.709
     31-02:00
                                      79.562 1329.407
                                                             239.161
3
                 23.60
                          16.478
                                      81.011 1334.877
    31-03:00
                                                             213.527
4
                 22.90
                                      93.244 1334.168
     31-04:00
                          15.618
                                                             243.131
   T-upperExt-2
                  T-lowerExt-2
                                  UCZAA WhiteFlow-4
                                                             SteamFlow-4
0
         358.282
                         329.545 1.443
                                              599.253
                                                                   67.122
                                                       . . .
1
         351.050
                         329.067 1.549
                                              537.201
                                                                   60.012
                                                       . . .
2
         350.022
                         329.260 1.600
                                              549.611
                                                                   61.304
3
         350.938
                         331.142 1.604
                                              623.362
                                                                   68.496
4
         351.640
                         332.709
                                    NaN
                                              638.672
                                                                   70.022
   Lower-HeatT-3 Upper-HeatT-3
                                  ChipMass-4
                                               WeakLiquorF
                                                              BlackFlow-2
0
         329.432
                         303.099
                                      175.964
                                                    1127.197
                                                                  1319.039
1
         330.823
                         304.879
                                      163.202
                                                    665.975
                                                                  1297.317
2
         329.140
                         303.383
                                      164.013
                                                     677.534
                                                                  1327.072
3
         328.875
                         302.254
                                      181.487
                                                     767.853
                                                                  1324.461
4
         328.352
                         300.954
                                      183.929
                                                     888.448
                                                                  1343.424
  WeakWashF
               SteamHeatF-3
                              T-Top-Chips-4
                                              SulphidityL-4
      257.325
                      54.612
                                     252.077
0
                                                          NaN
      241.182
                      46.603
                                     251.406
                                                        29.11
1
2
      237.272
                      51.795
                                     251.335
                                                          NaN
3
      239.478
                      54.846
                                     250.312
                                                        29.02
      215.372
                      54.186
                                     249.916
                                                        29.01
```

[5 rows x 23 columns]

In [7]: ▶ print(df\_filled)

	Observation	Y-Kappa	ChipRate	BF <b>-</b> CMratio	BlowFlow	ChipLevel4	\	
0	31-00:00	23.10	16.520	121.717	1177.607	169.805	-	
1	31-01:00	27.60	16.810	79.022	1328.360	341.327		
2	31-02:00	23.19	16.709	79.562	1329.407	239.161		
3	31-03:00	23.60	16.478	81.011	1334.877	213.527		
4	31-04:00	22.90	15.618	93.244	1334.168	243.131		
	•••			•••				
319	10-16:00	23.75	12.667	93.450	1178.252	276.955		
320	9-19:00	19.80	12.558	94.352	1184.119	297.071		
321	9-20:00	23.01	12.550	90.842	1188.517	289.826		
322	9-21:00	24.32	13.083	88.910	1192.879	318.006		
323	9-22:00	25.75	13.417	85.451	1186.342	248.312		
J <b>_</b> J	3 22.00	23.73	13.11,	03.131	1100.5.2	210.312		
	T-upperExt-2	2 T-low	erExt-2	UCZAA White	eFlow-4 .	SteamFl	ow-4	\
0	358.28		329.545	1.443			7.122	•
1	351.05		329.067	1.549			0.012	
2	350.02		329.260	1.600			1.304	
3	350.93		331.142	1.604			8.496	
4	351.64		332.709	0.000			0.022	
	•		•••	•••		••	•••	
319	347.28		310.970	1.523			1.141	
320	399.13		319.576	1.451			7.667	
321	373.63		314.591	1.457			6.446	
322	364.08		308.559	1.523			1.054	
323	356.28		310.482	1.474			8.247	
	Lower-HeatT	-3 Upper	-HeatT-3	ChipMass-4	WeakLiquo	rF BlackF	low-2	\
0	329.43	32	303.099	175.964	1127.	197 13	19.039	
1	330.82	23	304.879	163.202	665.	975 12	97.317	
2	329.14	10	303.383	164.013	677.	534 13	27.072	
3	328.87	75	302.254	181.487	767.	853 13	24.461	
4	328.35	52	300.954	183.929	888.	448 13	43.424	
	• •		• • •	• • •		• • •		
319	330.13	17	304.006	148.174	1027.	201 13	57.271	
320	330.84	18	304.616	165.178	906.	962 13	11.177	
321	330.22	26	304.686	160.841	887.	125 13	19.226	
322	327.34	<del>1</del> 6	304.363	147.589	804.	423 13	20.225	
323	328.09	92	304.093	144.218	828.	328 13	20.848	
_				op-Chips-4				
0	257.325			252.077				
1	241.182		6.603	251.406		9.11		
2	237.272		1.795	251.335		0.00		
3	239.478		4.846	250.312		9.02		
-				240 016	2	9.01		
4	215.372	5	4.186	249.916		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	•••		• • •			• • •		
 319	 381.643	4	 5.264	 252.947	3	 0.86		
 319 320	381.643 25.494	4 5	 5.264 0.528	 252.947 252.092	3	 0.86 0.70		
319 320 321	381.643 25.494 0.638	4 5 4	 5.264 0.528 5.549	252.947 252.092 252.438	3	 0.86 0.70 0.00		
319 320 321 322	381.643 25.494 0.638 0.000	4 5 4	 5.264 0.528 5.549 3.725	252.947 252.092 252.438 253.176	3 3 3	 0.86 0.70 0.00 1.13		
319 320 321	381.643 25.494 0.638	4 5 4	 5.264 0.528 5.549	252.947 252.092 252.438	3 3 3	 0.86 0.70 0.00		

[324 rows x 23 columns]

	Observation	Y-Kappa	ChipRate	BF-CMratio	BlowFlow	ChipLevel	4 \	
1	31-01:00	27.60	16.810	79.022	1328.360	341.3		
3	31-03:00	23.60	16.478	81.011	1334.877	213.5	27	
5	1-08:00	14.23	15.350	85.518	1171.604	198.5	38	
7	31-06:00	22.65	14.100	91.887	1307.852	288.98		
9	31-08:00	24.70	13.850	96.208	1334.892	362.5		
312	31-10:00	24.40	14.117	85.998	1330.104	394.2		
317	4-16:00	17.80	16.625	78.367	1276.082	202.74		
319	10-16:00	23.75	12.667	93.450	1178.252	276.9		
320	9-19:00	19.80	12.558	94.352	1184.119	297.0		
322	9-21:00	24.32	13.083	88.910	1192.879	318.00		
	T-upperExt-	2 T-low	erExt-2	UCZAA White	eFlow-4	Steaml	Flow-4	\
1	351.0		329.067	1.549	537.201		60.012	
3	350.93	38	331.142	1.604	623.362		68.496	
5	344.0		325.195	1.436		• • •	65.225	
7	352.3		331.162	1.468			71.298	
9	352.3		327.358	1.515			64.249	
					• • •			
312	348.0	89	319.027	1.429	540.558		62.179	
317	360.1	27	329.266	1.488	698.486	• • •	75.296	
319	347.2	86	310.970	1.523	513.956		61.141	
320	399.1	35	3 <b>1</b> 9.576	1.451	570.058		67.667	
322	364.08	81	308.559	1.523	504.852	• • •	61.054	
	Lower-HeatT		-HeatT-3	ChipMass <b>-</b> 4	WeakLiquo		kFlow-2	/
1	330.8	23	304.879	163.202	665	.975	1297.317	
3	330.83 328.8	23 75	304.879 302.254	163.202 181.487	665 767	.975 : .853 :	1297.317 1324.461	
3 5	330.83 328.83 322.10	23 75 03	304.879 302.254 298.517	163.202 181.487 165.814	665 767 826	.975 : .853 : .243	1297.317 1324.461 907.641	
3 5 7	330.83 328.8 322.10 329.60	23 75 03 62	304.879 302.254 298.517 301.539	163.202 181.487 165.814 179.886	665 767 826 837	.975 .853 .243 .178	1297.317 1324.461 907.641 1315.111	
3 5	330.83 328.83 322.10	23 75 03 62	304.879 302.254 298.517	163.202 181.487 165.814	665 767 826 837	.975 .853 .243 .178	1297.317 1324.461 907.641	
3 5 7 9	330.8: 328.8: 322.10 329.60 332.20	23 75 03 62 64	304.879 302.254 298.517 301.539 305.419	163.202 181.487 165.814 179.886 166.120	665 767 826 837 909	.975 .853 .243 .178 .810	1297.317 1324.461 907.641 1315.111 1318.725	
3 5 7 9  312	330.8: 328.8: 322.10 329.60 332.20	23 75 03 62 64 	304.879 302.254 298.517 301.539 305.419  302.652	163.202 181.487 165.814 179.886 166.120 	665 767 826 837 909	.975 .853 .243 .178 .810 	1297.317 1324.461 907.641 1315.111 1318.725 	•
3 5 7 9  312 317	330.8: 328.8: 322.10 329.60 332.20 329.8: 321.6:	23 75 03 62 64  31	304.879 302.254 298.517 301.539 305.419  302.652 297.088	163.202 181.487 165.814 179.886 166.120  163.258 180.438	665 767 826 837 909 827 1017	.975 .853 .243 .178 .810 	1297.317 1324.461 907.641 1315.111 1318.725  1312.372	
3 5 7 9  312 317 319	330.8: 328.8: 322.10: 329.6: 332.20:  329.8: 321.6: 330.1:	23 75 03 62 64  31 58	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174	665 767 826 837 909 827 1017	.975 .853 .243 .178 .810  .107 .333	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271	
3 5 7 9  312 317 319 320	330.8 328.8 322.1 329.6 332.2 329.8 321.6 330.8	23 75 03 62 64  31 58 17	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174 165.178	665 767 826 837 909 827 1017 1027 906	.975 .853 .243 .178 .810  .107 .333 .201 .962	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319	330.8: 328.8: 322.10: 329.6: 332.20:  329.8: 321.6: 330.1:	23 75 03 62 64  31 58 17	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174	665 767 826 837 909 827 1017 1027 906	.975 .853 .243 .178 .810  .107 .333 .201 .962	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271	
3 5 7 9  312 317 319 320	330.8 328.8 322.1 329.6 332.2 329.8 321.6 330.1 330.8 327.3	23 75 03 62 64  31 58 17 48	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174 165.178	665 767 826 837 909 827 1017 1027 906 804	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322	330.8 328.8 322.1 329.6 332.2 329.8 321.6 330.1 330.8 327.3	23 75 03 62 64  31 58 17 48 46 SteamHea	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174 165.178 147.589	665 767 826 837 909 827 1017 1027 906 804 Sulphidity	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322	330.8 328.8 322.1 329.6 332.2 329.8 321.6 330.1 330.8 327.3 WeakWashF	23 75 03 62 64  31 58 17 48 46 SteamHea	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 ttF-3 T-T	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174 165.178 147.589	665 767 826 837 909 827 1017 1027 906 804 Sulphidity	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 yL-4 9.110	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322	330.8 328.8 322.1 329.6 332.2 329.8 321.6 330.1 330.8 327.3 WeakWashF 241.182 239.478	23 75 03 62 64  31 58 17 48 46 SteamHea 4	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174 165.178 147.589 op-Chips-4 251.406 250.312	665 767 826 837 909 827 1017 1027 906 804 Sulphidity	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 yL-4 9.110 9.020	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322	330.8: 328.8 322.10 329.60 332.20 . 329.8: 321.6! 330.1: 330.86 327.36  WeakWashF 241.182 239.478 595.875	23 75 03 62 64  31 58 17 48 46 SteamHea 4	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807	163.202 181.487 165.814 179.886 166.120  163.258 180.438 148.174 165.178 147.589 op-Chips-4 251.406 250.312 249.580	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 yL-4 9.110 9.020 0.340	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322	330.8 328.8 322.1 329.6 332.2 329.8 321.6 330.1 330.8 327.3 WeakWashF 241.182 239.478 595.875 234.047	23 75 03 62 64  31 58 17 48 46 SteamHea 4 5	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807 3.805	163.202 181.487 165.814 179.886 166.120 163.258 180.438 148.174 165.178 147.589  fop-Chips-4 251.406 250.312 249.580 249.971	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29 30	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 .423 .423 .423 .423 .423 .423	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322 1 3 5 7 9	330.8: 328.8 322.10 329.60 332.20 . 329.8: 321.60 330.1: 330.84 327.34  WeakWashF 241.182 239.478 595.875 234.047 180.375	23 75 03 62 64  31 58 17 48 46 SteamHea 4 5	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807 3.805 8.842	163.202 181.487 165.814 179.886 166.120 163.258 180.438 148.174 165.178 147.589  op-Chips-4 251.406 250.312 249.580 249.971 251.121	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29 30	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 .423 .423 .423 .423 .423 .423 .423 .423 .423	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322 1 3 5 7 9	330.8: 328.8 322.10 329.60 332.20 . 329.8: 321.6: 330.1: 330.84 327.34  WeakWashF 241.182 239.478 595.875 234.047 180.375	23 75 03 62 64  31 58 17 48 46 SteamHea 4 5 5	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807 3.805 8.842 	163.202 181.487 165.814 179.886 166.120 163.258 180.438 148.174 165.178 147.589  op-Chips-4 251.406 250.312 249.580 249.971 251.121	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29 30 29	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 .424 .424 .425 .426 .427 .428 .429	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322 1 3 5 7 9  312	330.8 328.8 322.1 329.6 332.2 329.8 321.6 330.1 330.8 327.3 WeakWashF 241.182 239.478 595.875 234.047 180.375 	23 75 03 62 64  31 58 17 48 46 SteamHea 4 5 5	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807 3.805 8.842 	163.202 181.487 165.814 179.886 166.120 163.258 180.438 148.174 165.178 147.589  fop-Chips-4 251.406 250.312 249.580 249.971 251.121 251.406	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29 36 29	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 .424 .423 .424 .425 .426 .427 .428 .429	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322 1 3 5 7 9  312 317	330.8: 328.8: 322.10 329.60 332.20 . 329.8: 321.60 330.1: 330.84 327.34  WeakWashF 241.182 239.478 595.875 234.047 180.375 132.163 433.089	23 75 03 62 64  31 58 17 48 46 SteamHea 4 5 5 4	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807 3.805 8.842  9.446 4.675	163.202 181.487 165.814 179.886 166.120 163.258 180.438 148.174 165.178 147.589  op-Chips-4 251.406 250.312 249.580 249.971 251.121 251.406 251.747	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29 36 29 29	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 .424 .425 .426 .427 .428 .429	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322 1 3 5 7 9  312 317 319	330.8: 328.8: 329.6: 329.6: 332.2: 329.8: 321.6: 330.1: 330.8: 327.3: WeakWashF 241.182 239.478 595.875 234.047 180.375 132.163 433.089 381.643	23 75 03 62 64  31 58 17 48 46 SteamHea 4 5 5 4	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807 3.805 8.842  9.446 4.675 5.264	163.202 181.487 165.814 179.886 166.120 163.258 180.438 148.174 165.178 147.589  op-Chips-4 251.406 250.312 249.580 249.971 251.121 251.406 251.747 252.947	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29 29 36 29 29	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 .423 .423 .423 .423 .9.110 .9.020 .9.210  .9.220 .9.210  .9.292 .9.320 .9.860	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	
3 5 7 9  312 317 319 320 322 1 3 5 7 9  312 317	330.8: 328.8: 322.10 329.60 332.20 . 329.8: 321.60 330.1: 330.84 327.34  WeakWashF 241.182 239.478 595.875 234.047 180.375 132.163 433.089	23 75 03 62 64  31 58 17 48 46 SteamHea 4 5 5 4	304.879 302.254 298.517 301.539 305.419  302.652 297.088 304.006 304.616 304.363 tF-3 T-T 6.603 4.846 2.807 3.805 8.842  9.446 4.675	163.202 181.487 165.814 179.886 166.120 163.258 180.438 148.174 165.178 147.589  op-Chips-4 251.406 250.312 249.580 249.971 251.121 251.406 251.747	665 767 826 837 909 827 1017 1027 906 804 Sulphidity 29 29 36 29 29	.975 .853 .243 .178 .810  .107 .333 .201 .962 .423 .424 .425 .426 .427 .428 .429	1297.317 1324.461 907.641 1315.111 1318.725  1312.372 1052.785 1357.271 1311.177	

[141 rows x 23 columns]

```
In [9]: M summary_stats = df.describe()
print("\nSummary statistics:")
print(summary_stats)
```

```
Summary statistics:
                      ChipRate
                                BF-CMratio
                                                BlowFlow
                                                           ChipLevel4
          Y-Kappa
count
      324.000000
                    319.000000
                                307.000000
                                              308.000000
                                                            323.000000
        20.635370
                     14.347937
                                  87.464456
                                             1237.837614
                                                            258.164483
mean
                      1.499095
                                  7.995012
std
         3.070036
                                              100.593735
                                                             87.987452
        12.170000
                      9.983000
                                  68.645000
                                                              0.000000
min
                                                0.000000
25%
        18.382500
                     13.358000
                                  81.823000
                                             1193.215250
                                                            213.527000
50%
        20.845000
                     14.308000
                                  86.739000
                                             1273.138500
                                                            271.792000
75%
        23.032500
                     15.517000
                                  92.372000
                                             1289.196000
                                                            321.680000
        27.600000
                     16.958000
                                121.717000
                                             1351.240000
                                                            419.014000
max
                       T-lowerExt-2
                                             UCZAA
                                                    WhiteFlow-4
                                                                    AAWhiteSt-4
       T-upperExt-2
count
          322.000000
                           322.000000
                                        299.000000
                                                       323.000000
                                                                      173.000000
mean
          356.904295
                           324.020180
                                          1.492010
                                                       591.732260
                                                                        6.140410
std
            9.209290
                             7.621402
                                          0.105923
                                                        67.016351
                                                                        0.081609
          339.168000
                           284.633000
                                          1.182000
                                                       405.111000
                                                                        5.890000
min
                                                                        6.089000
25%
          350.241250
                           321.420000
                                          1.431500
                                                       540.989500
50%
          356.843000
                           325.669000
                                          1.498000
                                                       592.895000
                                                                        6.135000
75%
          362.242250
                           329.175000
                                          1.560500
                                                       639.480500
                                                                        6.199000
          399.135000
                           337.012000
                                          1.747000
                                                       731.394000
                                                                        6.340000
max
            SteamFlow-4
                           Lower-HeatT-3
                                           Upper-HeatT-3
                                                            ChipMass-4
              323.000000
                                                             323.000000
                              322.000000
                                               322.000000
count
       . . .
               66.668285
                              325.567820
                                               300.525699
                                                             162.222322
mean
       . . .
std
                 5.708587
                                4.609862
                                                 4.568484
                                                              14.160688
       . . .
min
               48.568000
                              318.051000
                                               293.312000
                                                             113.922000
       . . .
25%
               62.518000
                              321.385500
                                               296.513250
                                                             153.032500
       . . .
50%
               67.429000
                              324.741000
                                               299.126000
                                                             163.690000
       . . .
75%
               71.522000
                              329.845250
                                               304.244750
                                                             172.555000
       . . .
max
               76.147000
                              333.854000
                                               311.146000
                                                             189.268000
       WeakLiquorF
                      BlackFlow-2
                                     WeakWashF
                                                 SteamHeatF-3
                                                                 T-Top-Chips-4
         323.000000
                        322.000000
                                     323.000000
                                                     322.000000
                                                                      323.000000
count
         873.828941
                                     263.543068
mean
                       1175.917016
                                                      49.696907
                                                                      251.240087
         122.073521
                        149.334010
                                     163.666942
                                                       4.551909
                                                                        1.283432
std
                                       0.000000
min
         486.938000
                        838.948000
                                                      35.510000
                                                                      248.359000
25%
         792.019500
                       1044.817500
                                     134.649000
                                                      46.389750
                                                                      250.312000
50%
         865.254000
                       1150.221500
                                     269.193000
                                                      50.277000
                                                                      251.380000
75%
         965.286500
                       1319.021250
                                     405.563000
                                                      53.294250
                                                                      252.323500
max
        1226.277000
                       1395.767000
                                     715.715000
                                                      63.332000
                                                                      254.122000
       SulphidityL-4
           173.000000
count
mean
            30.411671
std
             0.701317
min
            29.010000
25%
            29.970000
50%
            30.370000
75%
            30.820000
max
            32.840000
[8 rows x 22 columns]
```

```
▶ | column_stats = df['BlowFlow'].describe()
In [25]:
             print("\nSummary statistics for a specific column:")
             print(column_stats)
             Summary statistics for a specific column:
             count
                       308.000000
             mean
                      1237.837614
                       100.593735
             std
             min
                         0.000000
             25%
                      1193.215250
             50%
                      1273.138500
             75%
                      1289.196000
             max
                      1351.240000
             Name: BlowFlow, dtype: float64
 In [ ]: ▶
```